

**REMARKS**

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

It is respectfully requested that this after-final amendment and reply be considered and entered, since: a) it is believed to place the application in condition for allowance, and b) it is believed to lessen the number of issues for appeal, and c) no new issues are believed to be raised by way of the claim amendments.

Claims 1, 7, 12-13, 18, 27 and 30 are being amended. With respect to independent claim 1, the features of now-canceled claims 2 and 3 have been incorporated into that claim. With respect to independent claim 7, the features of now-canceled claim 10 have been incorporated into that claim. With respect to independent claim 12, the features of now-canceled claims 2 and 3 have been incorporated into that claim. With respect to independent claim 13, the features of now-canceled claim 10 have been incorporated into that claim. Independent claims 18 and 30 have been amended to more specifically distinguish over the cited art of record.

Claims 2-3, 10, 14-17, 19-24, and 31 are being canceled.

No claims are being added.

This amendment amends and cancels claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claims remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1, 4-9, 11-13, 18 and 25-30 are now pending in this application.

Based on the comments made on pages 2 and 3 of the Office Action, it appears that the Examiner's opinion about Hashima can be summarized as follows:

- 1) In view of the 35 U.S.C. § 102(e) rejection, the disclosure of Hashima should be considered as a whole, and not in part;
- 2) Hashima indicates the use of normalized correlation operation;
- 3) Hashima indicates that any one, i.e. an approximation value or a mathematically calculated value, is acceptable as a correlation value; and
- 4) Hashima teaches the concept of finding a normalized correlation between each of the reference images (one reference image) and the input image.

However, the following counterarguments are provided against the Examiner's opinion:

- 1) The Examiner appears to reconstruct the invention of Hashima by combining or synthesizing fragmentary descriptions about normalized correlation operation, correlation value, and the like, which is clearly an improper reconstruction of the invention of Hashima;
- 2) Normalized correlation operation is described only in the BACKGROUND OF THE INVENTION section of Hashima, and not in other sections of Hashima. Further, Hashima admits that normalized correlation operation raises a problem of increasing of an amount of operations. In SUMMARY OF THE INVENTION section of Hashima, it clearly describes that Hashima's invention is made to overcome the problem of increasing of an amount of operations. However, in sharp contrast to the present invention, Hashima does not aim to improve a normalized correlation method, but adopts apparently an approach other than the normalized correlation method, i.e. an image subtraction method, so as to avoid the normalized correlation operation which involves significant increase of an amount of operations and conduct area detection with high accuracy even with variations in luminance. In this connection,

please refer, for example, to column 7, lines 57 to column 8, line 14 of Hashima. Thus, Hashima actually teaches away from the present invention;

- 3) Even if any one of an approximation value or a mathematically calculated value is acceptable as a correlation value, a normalized correlation coefficient should be excluded, since Hashima does not utilize a normalized correlation operation, as seen from point 2), above; and
- 4) Hashima determines a correlation between each of a plurality of reference images and a noticed area, and not a values correlation, in contrast to the present invention. It is noted that Hashima describes that a correlation value is a sum of absolute values, and the operation is not a correlation operation in the standard mathematical meaning of that term (see column 7, lines 61 to column 8, lines 8 of Hashima).

Therefore, the Examiner's opinion is believed to be incorrect.

In the Office Action, claims 14-17, 19 and 31 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claims 14-17, 19 and 31 have been canceled, thereby rendering this rejection moot.

In the Office Action, claims 1, 6-7, 10-13, 14-19, and 21-31 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,115,505 to Hashima. This rejection is traversed with respect to the presently pending claims, for at least the reasons given below.

Hashima fails to disclose or suggest a feature of the present invention as recited in claim 1, whereby that feature corresponds to a step of obtaining a normalized correlation coefficient between a reference image and an input image using a function. That is, in sharp contrast to the present invention as recited in claim 1, Hashima does not disclose or suggest a method of applying a normalized correlation operation (see, for example, column 1, lines 39-43,

column 2, lines 18-24, and column 8, lines 1-14 of Hashima). In this connection, please note that a method adopted in Hashima is a so-called image subtraction method, and thus requires a plurality of reference images having different data values (see, for example, column 13, lines 41-43 and claim 1 of Hashima). On the other hand, the present invention according to claim 1 adopts a normalized correlation method that requires only one reference image. Since the normalized correlation method is strong in brightness variation, a single reference image can cope with any input image having arbitrary brightness.

As discussed above, Hashima fails to disclose or suggest all the components of the claim of the present application. Thus, the 35 USC 102(e) rejection based on Hashima should be reconsidered and withdrawn.

Also, it is noted that claims 21-24 should be considered under 35 U.S.C. 103(a), and not under 35 U.S.C. 102(e).

In the Office Action, claims 2-5 and 8-9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hashima. This rejection is traversed with respect to the presently pending claims, for at least the reasons given below.

First, please note that the features of now-canceled claims 2 and 3 have been incorporated into presently pending claim 1.

In the present invention according to presently pending claim 1, a function of a predetermined form pattern is provided for performing an operation in a normalized correlation method. Such a function configures a kind of image processing filter in a normalized correlation operation, and it is not obvious to utilize such a function in the applicable art. With such features, the present invention according to claim 1 can recognize an object based on pattern matching using a gray-scale normalized correlation method, which allows stable and reliable pattern detection with a shortened processing time, simplified structure, and reduced manufacturing cost as compared to conventional methods. Also please note that the function serving as an image processing filter produces an effect of achieving smoothed noise to allow pattern matching

without being affected by noise, which is a separate basis for patentability that is not disclosed or suggested by the cited art of record.

With respect to the present invention as recited in presently pending independent claims 7 and 13, there is carried out pattern matching for the foreground only with the background excluded. Such features are lacking in the disclosure of Hashima.

With respect to presently pending independent claims 18 and 30, there is recited a step of obtaining a function for giving a predetermined contrast pattern for a reference image corresponding to the predetermined contrast pattern of an input image, in which the function provides a predetermined form pattern. Such features are lacking in the disclosure of Hashima.

Accordingly, it is believed that presently pending claims 1, 4-9, 11-13, 18, and 25-30 are allowable over Hashima.

Therefore, Applicant believes that the present application is now in condition for allowance, and an early indication of allowance is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

December 4, 2003  
Date

Phillip J. Articola  
Phillip J. Articola  
Registration No. 38,819

FOLEY & LARDNER  
Washington Harbour  
3000 K Street, N.W., Suite 500  
Washington, D.C. 20007-5143  
Telephone: (202) 672-5300  
Facsimile: (202) 672-5399